



PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in the Construction of Rubber Pistons.

for pumps

We, HUNGARIAN RUBBER GOODS FACTORY LIMITED, of 17, Kerepesi-ut, Budapest X, Hungary, a Body Corporate organised under the Laws of Hungary, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to a rubber piston. In making borings in the ground, e.g., in the drilling of oil wells, rinsing pumps are used for the removal of the soil turned up. Since the muddy earth to be removed contains much sand, gravel and other rough and sharp substances the pumps become severely damaged and are worn out too quickly. To prolong the life of the pumps, rubber pistons are used. The rubber pistons which in practice have proved to be the best at present, are made from a combination of fabric and soft rubber and are fastened to the rod of the pump by means of a nut. The lower part of these pistons made from soft rubber consists of several layers of fabric placed above each other and impregnated with hard rubber, and serves the purpose of assuring the necessary firmness of the pistons, so as to avoid any change of shape of the lower part of the piston due to the pressing of the screw while in use. These pistons, however, have the drawback that their upper part made from soft rubber separates while in use from the part provided with fabric insertions, due to the change in its shape which the former nevertheless undergoes in consequence of the pressure.

A piston packing has previously been proposed composed of successive layers of coarse mesh vegetable or non-metallic fabric and having the void spaces filled with oil-proof rubber. It was also proposed to utilise a metal fabric in combination with the vegetable or non-metallic fabric in the said arrangement.

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According to the present invention there is provided a rubber piston for pumps serving for the transportation of muddy liquids containing rough and sharp substances, the upper part of which piston consists of soft rubber and the lower part of a semi-hard or hard rubber stiffened by a plurality of layers of wire gauze embedded therein, the whole being vulcanised or cemented together to form a unitary mass.

It is preferable to use for the stiffening a plurality of layers of a thin, loosely woven wire gauze, to avoid the swelling of the piston while in use. It is also preferable to use wire gauze to divide the stiff lower part from the upper part of the piston. The pressing of the two different qualities of rubber into the meshes of the wire gauze and their joint vulcanisation increases the adhesion of both parts of the piston and prevents them from separating.

The stiffened lower part and the soft upper part of the piston are formed into a unitary mass of vulcanisation or cementation to form a rubber piston according to the invention.

It is an object of this invention to produce a homogeneous rubber piston comprising an upper part made from soft rubber and a lower part made preferably from semi-hard or hard rubber reinforced by a plurality of layers of thin loosely woven wire gauze embedded therein, the whole being vulcanised together to form a homogeneous piston of greater durability thus prolonging the useful life of the pumps.

The invention will now be further described by way of example with reference to the accompanying drawing, which shows in section a rubber piston according to the invention disposed in a pump or cylinder.

Referring to the drawing, a piston having an upper part 2 of soft rubber is disposed in the cylinder 1 of a pump. The

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piston has a lower part 3 of semi-hard or hard rubber which is stiffened by embedding in it three or four layers of wire gauze (not shown separately in the drawing) one above the other at distances of a few millimeters. An uppermost layer of wire gauze (also not shown separately in the drawing) separates the stiffened lower part 3 from the soft upper part 2. The parts 2 and 3 are disposed around a piston rod 4 around which is also disposed an upper washer 5 and a lower washer 6, the whole being secured by a nut 7.

The rubber piston according to the invention may, of course, be used for any pump which serves for the transportation of muddy liquids containing rough and sharp substances.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A rubber piston for pumps serving for the transportation of muddy liquids

containing rough and sharp substances, the upper part of which piston consists of soft rubber and the lower part of a semi-hard or hard rubber stiffened by a plurality of layers of wire gauze embedded therein, the whole being vulcanised or cemented together to form a unitary mass.

2. A rubber piston as claimed in Claim 1, wherein the wire gauze used for the stiffening is a loosely woven, thin wire gauze.

3. A rubber piston as claimed in Claim 1 or 2, wherein the stiffened lower part of the piston is divided from the upper part by a wire gauze.

4. A rubber piston substantially as described with reference to the accompanying drawing.

Dated the 16th day of December, 1946.

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625,584 COMPLETE SPECIFICATION

1 SHEET

[This Drawing is a reproduction of the Original on a reduced scale.]

